

Jetstream 31 (J31) Flight Report for INTEX-B/MILAGRO
Flight VER1 flown 3 Mar 2006

A complete version of this report is posted at
<http://www.espo.nasa.gov/intex-b/flightplanningJ31.cgi>

Overview

This was the first J31 flight out of Veracruz airport. Preflight goals focused on becoming familiar with air traffic control (starting on standard airways), underflying Terra and Aqua near and off the Gulf coast, and practicing communication/coordination with the King Air B200 if it was able to join J31.

Engines on: 1620 UT
Engines off: 2003 UT

Takeoff: 1643 UT
Land: 1957 UT

16:45 Terra overpass
1951: Aqua overpass

Cabin crew: Billings, Gatebe, Knobelspieße, Pommier, Redemann.

Pilot Summary

Filed VFR flight plan along the airway from VER to TAM. Flew that, then 40 nmi toward PETRA. (See flight track in Fig. 1.) Flew spirals & legs at that point. Highest ascent was to 14,500'. Lowest 200'. Good test w ATC. They expected us. Very friendly in TAM area. We got what we asked for. Although we had filed our return as along the airways PETRA-TAM-VER, when in flight we requested a direct return to VER from the point between TAM & PETRA. Our request was granted. Communication with ATC was very good even down to 200'.

Cabin crew needs to have a single person (flight scientist) talking to pilot.

Discussion of flight

Some headphones didn't work—fixed after flight.

Need fuel topped off next time.

30 min between doors close & takeoff is adequate.

Lots of birds on landing.

B200 was unable to join J31 because of delays associated with getting permission to fly.

Each future J31 flight will have a flight scientist designated by the J31 Lead PI (Russell). The flight scientist will be the single communicator between the cabin and the pilots, unless he designates another communicator for brief periods. The flight scientist's duties include receiving input from the other scientists or operators aboard, seeking consensus on directions and requests to the pilots, and making decisions on those on directions and requests when consensus cannot be achieved in a timely fashion.

Instrument Performance Summary

AATS: Did fine. Temp control better than in test flight. Science data look good. High alt spectrum needs some cal adjusting. Got good profile, & low alt legs. Did RSP legs in principal plane hi & lo. Aerosols looked layered. Max midvis AOD at 200' ~0.3-0.4. Small Angstrom exp. Window really dirty on landing—speckled.

CAR: Worked well start to end. (on runway at takeoff til just before landing). No good BRDF science opportunities, but J31 did 5 BRDF circles to train for BRDFs (between 30 & 40 DME between 090 & 100 radial off Tampico VOR).

POS: Worked fine, no problem. Need 10 minutes after power up until POS is ready for A/C to move. Need new trained operators by 7 Mar or 11 Mar at latest.

NavMet: John P. turned on, data posted. See Fig. 2.

RSP: Instrument warm—vacuum not sufficient to hold LN2. Don't have IR channels (mainly 2250 nm). Need pump in shipment to fix vacuum. Data problem after RSP legs, like in test flights. Could download data until start of 200' leg after RSP legs.

Need J31 to point carefully into principal plane, within 10 deg. On future flights when all headphones work, RSP operator should be able to do this by talking to pilot.

SSFR: Worked fine. Can't download data yet because no Linux computer is here—it's in shipment. Brief startup problem on runway—fixed before takeoff. Headphone problems made this worse.

Flight Path, Timing, and Measurements (all times UT [VER local +6])

1650	5, 500', 500' above stratus deck, heading TAM (Tampico), cloud top height variable
1718	10,500', ascent to 10,500 for visual of clouds, broken clouds below
1802	14,500 2-min RSP leg in cloud-free patch. Fairly dark ocean surface, AOD<0.01
1807	14,500' return leg
1810	spiral descent to 200'
1824	200', 2-min RSP leg to retrace leg @ 14,500'. Heading 180 again, some clouds over right wing.
1833	Ascend to 2,000' for CAR circles.
1834	Start CAR circles
1851	Start low-level leg towards home, clouds increasing.
1901	Ascend to 6,500'

1918 Descending to 200'
 1924 200', heading towards VER
 1931 Ascend to 10,500', RTB
 1957 Touchdown

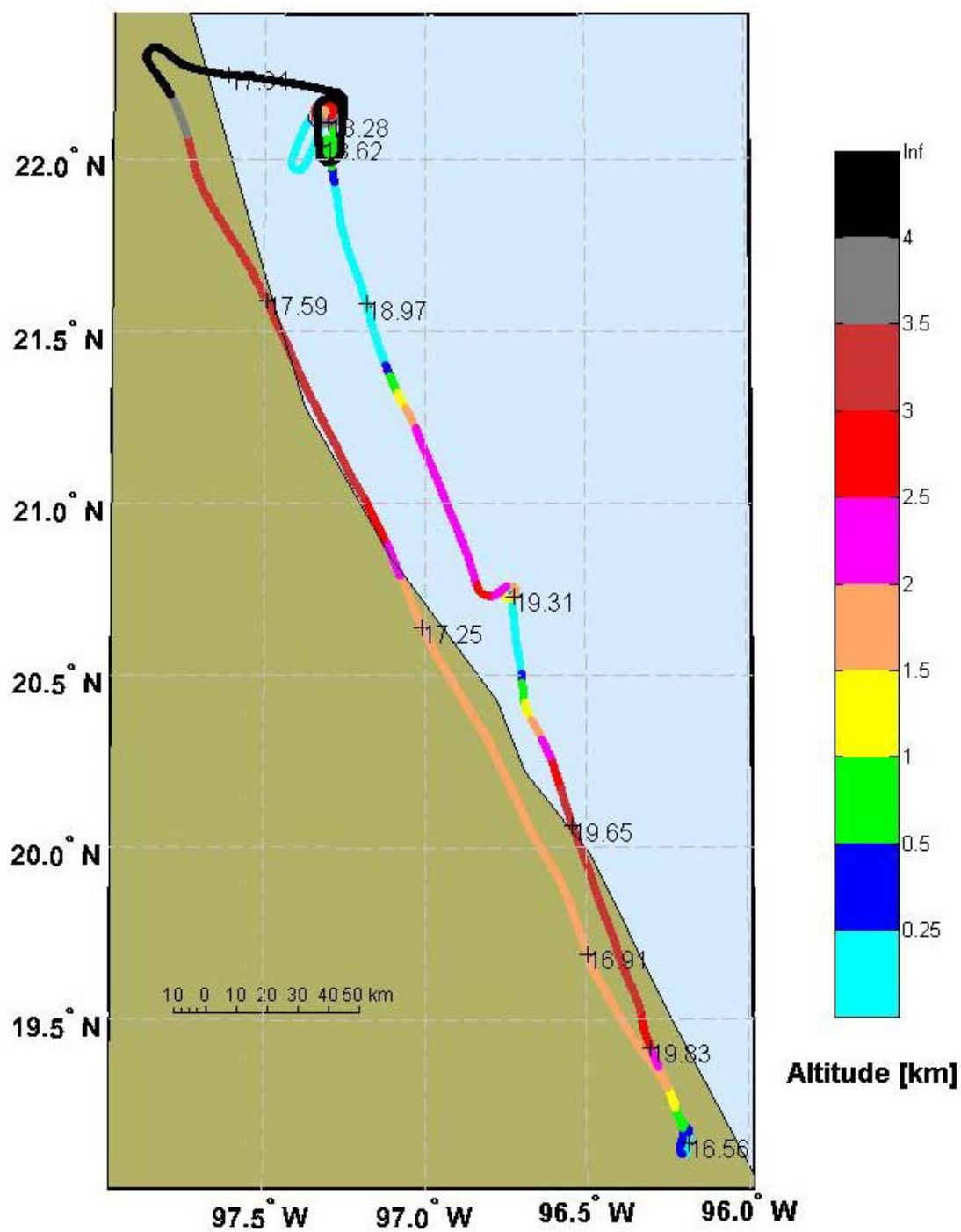


Figure 1. Actual flight track, J31 Flight VER1, 3 March 2006.

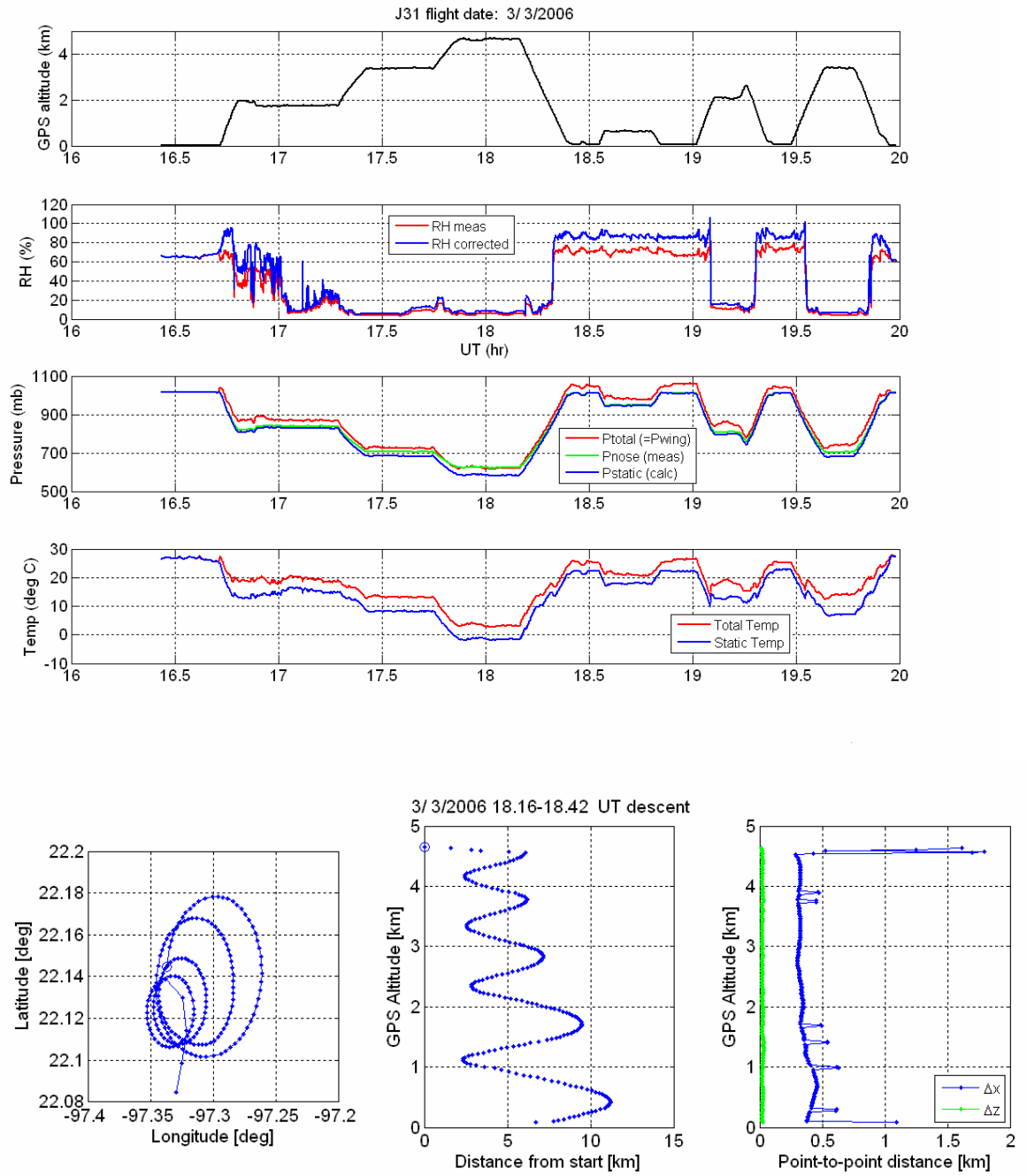


Figure 2. NavMet data, J31 Flight VER1, 3 March 2006.